

Kansas Agricultural Experiment Station Research Reports

Volume 0
Issue 1 *Cattleman's Day (1993-2014)*

Article 1213

1980

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D. Hayes

L. Corah

E.E. Bartley

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Recommended Citation

Hayes, D.; Corah, L.; and Bartley, E.E. (1980) "Grazing cattle on alfalfa," *Kansas Agricultural Experiment Station Research Reports*: Vol. 0: Iss. 1. <https://doi.org/10.4148/2378-5977.2616>

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Abstract

Data collected from six producers grazing 4050 head of cattle on 850 acres of irrigated alfalfa showed that under optimum conditions, Kansas producers can expect: stocking rate, 5 to 6 head/acre; average daily gain, 2 lbs +; total pounds of beef/acre, 1300 to 1500 lbs; and death loss below 1%. Bloat Guard 2,3 performed the best when added to a grain supplement.

Keywords

Cattlemen's Day, 1980; Report of progress (Kansas State University. Agricultural Experiment Station); 377; Beef; Alfalfa

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Grazing Cattle on Alfalfa¹

Doug Hayes, Larry Corah, and E. E. Bartley

Summary

Data collected from six producers grazing 4050 head of cattle on 850 acres of irrigated alfalfa showed that under optimum conditions, Kansas producers can expect: stocking rate, 5 to 6 head/acre; average daily gain, 2 lbs +; total pounds of beef/acre, 1300 to 1500 lbs; and death loss below 1%. Bloat Guard^{2,3} performed the best when added to a grain supplement.

Introduction

Cattle have grazed alfalfa for many years, with various degrees of success depending on how well bloat was controlled. In more recent years, the clearance of poloxalene (Bloat Guard) and its incorporation into various feeding systems has generated increased interest in grazing irrigated alfalfa, most notably in Texas, Utah, and Idaho. The concept, however, has not been popular in the High Plains. In 1979, because of favorable cattle prices, less demand for alfalfa by dehydrating plants, and increasing fuel costs, interest in grazing alfalfa increased. To collect production and economic data on alfalfa grazing, we worked with six cooperating producers in south central and southwest Kansas.

Procedures

All six locations were irrigated; five with circle irrigators, one by a flood system. Stands varied from young and lush to fairly old with grass and weeds intruding.

Each pasture was split into six plots for rotational grazing. Cattle grazed each plot four to seven days. Producers attempted to move the cattle to a fresh plot before the alfalfa reached one-tenth bloom, except on the initial rotation, when grazing was either started on very immature

¹Appreciation is expressed to the following people for their cooperation in obtaining part of the information: Harold Koehn and Bruce Wilson of Pawnee Beef Builders, Larned; Lee Borck and Brian Ward of Ward Feedyard, Larned; Harold Burnett of Burnett Feedlot, Scot City; Dale and Jerry Mott, Iuka; Terry and Jim Sallee, St. John; and Bob and Barry Kane, Kismet. Also, the help of Dr. Larry Kennedy of Smith Kline Corporation is gratefully acknowledged.

²Bloat Guard is a product of Smith Kline Animal Health Products.

³Mention of products and companies is made with the understanding that no discrimination is intended and no endorsement implied.

alfalfa or half the pasture was harvested as hay--so alfalfa would be in the proper stage of growth when cattle were placed on it.

At two of the six locations, Bloat Guard was fed in liquid supplement. At the other four locations, it was added to a grain or grain-silage mixture. Three of the four fed once daily; one, twice daily. Dry roughage (wheat straw, old sudangrass hay, milo stover, rye hay, or alfalfa hay) was offered free choice at four of the locations to prevent bloat, slow alfalfa removal from the rumen, "stretch" the pasture, or for a combination of those reasons.

Weights were taken on some of the cattle at all locations for an indication of average daily gain and total pounds of beef produced per acre.

At four locations the cattle were grazed on a "custom" basis, charging customers 35 to 40 cents/pound of gain. At two locations, the alfalfa was leased. One location paid 20 cents/pound of gain; the other, 35 cents/head/day.

At two of the six locations, cattle numbers could be adjusted to alfalfa growth, and at those locations, some cattle were placed on the alfalfa one to three months and then removed with another group replacing them.

Results and Discussion

Stocking Rate - The stocking rate averaged 3.7 head/acre (table 12.1) with cattle ranging from 400 to about 600 pounds. Quality of the alfalfa stand was the principle factor influencing the stocking rate. Our results indicated that, under Kansas growing conditions, the optimum stocking rate with 400- to 450-pound cattle is five to six head/acre.

Daily Gain - The average daily gains were somewhat lower than anticipated (table 12.1). Work in other states has consistently shown daily gains of 1.7 to 2.0 pounds. At some locations, the alfalfa was more mature than desired during the initial rotation. This may have reduced gains slightly.

Pounds of Beef per Acre - Our average beef production per acre (578 lbs) was much lower than the 1500 lbs per acre frequently seen in the southern Great Plains, where grazing periods are longer and stocking rates higher.

Grazing Period - Our average grazing period was only 93 days. But under optimum grazing conditions in Kansas, a 150-day grazing period might be expected. At one of the six locations, the cattle were removed fairly early because of difficulties in keeping them confined and subsequent bloat problems. At two other locations, grazing was not started until early June.

Hay Harvested per Acre - At some locations, hay was taken off pasture in the initial rotation. At one location, two plots were harvested during grazing, due to understocking. Hay harvested averaged .6 ton/acre.

Death Loss to Bloat - When high death loss from bloat occurred, intake of liquid supplement was not consistent or cattle got out of the designated plot. Fence-crawling led to considerable bloating. Bloat Guard added to

grain generally controlled bloat well. Deaths from bloating ranged from none to 5.5%.

Poloxalene Intake - In most cases, from 1½ to 2 grams of poloxalene, the recommended level, was fed per 100 pounds of body weight per day.

Supplemental Feed per Head per Day - Supplemental feed intake was calculated on the basis of original moisture, even when liquid supplement was fed. Silage was converted to 90% dry matter.

Supplemental feed varied widely from location to location. Liquid supplement, when fed, usually was the only feed other than some dry hay or stover. When Bloat Guard was added to grain, the grain often included minerals, salt, and vitamins. The grain varied from ground milo to steam-flaked corn. At two locations, the cattle came to the bunks at the sight of a feed truck; at the other two, they had to be driven in, and at one they were locked in the bunk area one hour before feeding to induce more even consumption and, hence, bloat protection. That practice gave zero death losses from bloat. The other two custom feeders who fed grain as the Bloat Guard carrier also had few bloat problems.

Table 12.1. Results from 6 alfalfa grazing demonstrations in Kansas in 1979.

Trait	Average	Range
Total no. cattle at 6 locations	4050	---
Total acres of alfalfa grazed at 6 locations	850	---
Average stocking rate (cattle/acre)	3.7	2.2 to 4.76
Average daily gain (lbs/day)	1.54	1.2 to 2.0
Average lbs beef produced/acre*	578	347 to 836
Average no. grazing days	93	69 to 139
Amount of hay harvested/acre (ton)	.6	0 to 1.75
Average death loss due to bloat, %	2.38	0 to 5.5
Poloxalene intake (grams/animal/day)	9.04	6 to 12
Average lbs of supplemental feed/head/day**	3.35	2 to 5.1

* Based on only 5 locations.

**Silage converted to 90% dry matter. All other supplements, including liquid supplements, averaged at original moisture level.

Management Recommendations When Grazing Alfalfa

Based on the extensive demonstration work from Texas, our field experiences in Kansas in 1979 and work done earlier at Kansas State, we recommend the following management practices when grazing alfalfa.

- 1) To get animals accustomed to Bloat Guard, give cattle access to it 2 to 5 days before turning them on alfalfa. To prevent bloat, Bloat Guard must be in the rumen before alfalfa is eaten.
 - 2) When starting, use higher dosages of the drug than recommended, then, if no bloat occurs, reduce drug dosage. Increase dosages when alfalfa is lush and decrease dosages when it is mature.
 - 3) Turn cattle on alfalfa for the first time about mid-morning after they have filled on other roughage. Then leave them on pasture constantly, even at night. Never let cattle get hungry while grazing. Check the cattle at least twice daily; more often if any of them bloat.
 - 4) Although prebloom alfalfa can be grazed with little bloat, mature alfalfa (1/10 bloom or later) should be used when first starting.
 - 5) Stock established alfalfa at 5 to 7 head of 400-lb cattle per acre. Hay which will produce 6 tons per acre of alfalfa will support 5 head per acre.
 - 6) Fence the pasture into six equal sections. Graze each section five days, then rotate to the next section to allow 25 days for regrowth between grazing periods--to maintain good stands and good production with minimum trampling.
 - 7) Irrigate as needed to sustain maximum production. Usually, plots are watered behind the cattle so that they do not graze on wet ground. On well drained, sandy soils, however, it is possible to water over the cattle with little or no trampling of the stand.
 - 8) To prevent excessive trampling during wet weather, especially on clay soils. feed hay in another location.
 - 9) Having dry roughage available all the time helps reduce bloat and slow rumen removal rate, thus making better use of the alfalfa.
 - 10) Manage stocking rate and rotation interval carefully. Cattle moved from an overgrazed plot may overeate when moved to a fresh plot, which increases the possibility of bloat. Move cattle to a fresh plot when alfalfa is grazed down to about 4 inches in height.
- Overgrazing will increase supplemental feed consumption, thus increasing expense. However, stock heavy enough to insure even grazing. If uneven grazing occurs, the remaining plants become larger and less palatable. Then during regrazing, the animals eat the younger, more tender plants again. That reduces productive acreage unless the large plants are mowed.
- 11) Alfalfa that is too mature is not palatable and will cause over-

consumption of the supplemental feed.

12) Annual fertilization should be based on annual soil tests.

13) If flies and watery eyes are a problem, use dust bags.

14) If footrot is a problem, use organic iodine.

15) Good fencing is essential. When cattle get through a fence into a new, lush plot with high bloat potential, they may be unable to obtain Bloat Guard. Remove any habitual fence crawlers. Constant surveillance is needed. Use electric fencing. Two strands may be needed if fence crawling is a problem.

16) If Bloat Guard is fed in liquid supplement: a) place lick tanks near water or other areas where cattle congregate; b) provide one lick wheel per 25 head of cattle and at least one lick tank out in the pasture. On larger operations, provide one lick wheel per 50 cattle around the field so animals are never more than 400 yards from a lick tank; c) if underconsumption is a problem, place salt blocks close to, or on top of, lick tanks. Cattle congregate near rubbing posts--a good tank location; d) measure liquid depth in tanks daily and move tanks from areas of low supplement consumption to areas of high consumption; e) Mount tanks on sleds to simplify moving with a pickup truck; f) if overconsumption is a problem, reduce the number of wheels available by removing tanks or by tying down wheels.

17) If Bloat Guard is included with grain: a) add the desired amount to 2 lbs grain and feed once or twice daily. The cost of the grain is returned as extra weight gain. Feeding grain twice a day insures a more even concentration of drug in the rumen; b) if irrigated circles are pastured, place feed bunks around the periphery of the catch pen, which is usually at the pivot. Supply 1.5 to 2.0 feet of bunk space per head. If rectangular fields are pastured, build the catch pen at one side of the field and place the bunks for convenient feeding; c) make sure all cattle are present at the feed bunks before feeding the grain. It may be necessary to drive them to the bunk area; d) use a palatable grain base; e) if any cattle regularly refuse the grain, remove them.

18) If Bloat Guard blocks are used: a) accustom the cattle to blocks at least 3 days before grazing alfalfa; b) place blocks where cattle congregate. Place some blocks near water and some out in the pasture; c) use at least one block per five head of cattle; d) always keep adding a few fresh blocks because some cattle will not consume blocks that have been slobbered on and are stale; e) do not feed any other mineral block or loose mineral. The Bloat Guard blocks contain supplemental mineral and salt.